

CLAYTONIA

Newsletter of the Arkansas Native Plant Society

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The Mycorrhizal Fungi and Orchid Symbiosis or A See One, Do One, Teach One

by Carl Slaughter, MD

In my past surgical training and education there was a presumptuous proclamation we would promulgate about our ability to perform a particular surgical procedure. We would declare that we would observe one being performed, then we would perform one, and then we would be endowed with the skill and knowledge to teach others how to do the surgical procedure. (See one, do one, teach one)

This pretty well sums up my sentiment concerning today's topic about orchids and the mycorrhizal fungi. We all know that one of the characteristics that differentiate orchids from other angiosperms (vascular plants that have seeds inside an ovary) is that they have a multitude, sometimes in the millions, of very small seeds. They are small, because they lack endosperm. Endosperm is a layer of cells within the seed coat that is concerned with the nutrition of the embryo. Orchids lack this; so how do they receive their nutrition?

The orchid cannot survive without help; and the help comes from a group of fungi called mycorrhizal fungi. They supply the orchid with the needed food. There are a number of different fungi that can be involved in this endeavor. A few of the genera involved are: *Ceratrorhiza*, *Moniliopsis*, and *Epulorhiza*. The genus *Epulorhiza* has five species that are associated with temperate terrestrial orchid mycorrhizae. How do they do this you ask?



Snowy orchid (Platanthera nivea). Known in Arkansas only from an 1883 collection from a wet prairie in Arkansas County. Photo (from Texas) by Carl Slaughter.

They penetrate the seed's testa and invade the embryo through its suspensor region. After penetration they produce pelotons, which are tightly interwoven coils of proliferating fungal hyphae. The seed, either in search of nutrition or as a protective measure, produces a substance that dissolves the pelotons causing the release of nutrient matter (carbohydrates, etc.) that the seed uses for growth and germination. The fungus does not just transfer nutrients from the ground or air into the seed, but sacrifices itself or some of its body parts.

Some fungi are more aggressive than others. The more aggressive fungi can overcome the seed and destroy it. The more timid fungi can be destroyed by the seed's hunger or protective measures. This is a very delicate relationship and the orchids must be good "fungus managers". According to Zettler, from the Illinois College, this relationship must last until photosynthesis occurs. We will forget about the amino acids and other organic compounds that are produced.

This orchid and fungus relationship is said to be a symbiotic one where there is mutual benefit to both subjects. The only benefit that I can see is that they get to eat each other. In my way of thinking, this is a parasitic relationship. Oh well, back to Pope's Pierian Spring. A mutual benefit has been shown between fungi and other non-orchid plants.

Some, if not all, of the *Spiranthes* (ladies' tresses) will spend one to several years beneath the ground without sprouting. I used to say they were just dormant (resting or non-vegetative) and leave it at that. Recently, several investigators have suggested that they are able to stay underground because the mycorrhizal fungi are able to supply them with the necessary nutrition that they require during their subterranean retreat. Does this mean that the need to initiate seed production stimulates the vegetative state?

In the distant past, in teaching medical school, in research activity, in writing papers and in talks and presentations, I never wanted the subject to be something about which I was knowledgeable. The subjects that I was attracted to were those about which I possessed a great deal of ignorance. My reasoning was – how would I learn anything if I presented subjects about which I was already knowledgeable. I could learn much more if I researched a subject about which I had a deficit of information. In the past I believed this, but now, after many years, I believe that it just goes back to that axiom of my student days: see one, do one, teach one.

And this article is one!

President's Greeting

On January 30th, my porch still sported an unburned petunia, in bloom, and on the ledge of the carport, a ruellia stubbornly refused to get blasted and render up the pot that I wanted to use for some pansies. Oh well, if we're not fretting over our clement weather, we're complaining about the inclement weather.

This year holds excitement for me and the Arkansas Native Plant Society. The Executive Board just met in January and we have made good progress in charting a course for the coming months. More about some of the particulars below.

As it is a new year, let me encourage you with all my august official powers (insert knowing wink here) to ensure that your membership to the Society is paid and current. During the recent mailing of the memorial issue of the Claytonia, I counted the number of delinquent memberships, and just the ones expiring in 2003 and 2004 numbered almost 80, out of a total membership of about 340.

We are certainly *not* cash strapped as a Society, but please remember that membership dues do not paid equate to projects not attempted when we plan how to further the goals of education, conservation and preservation. Our primary income is from dues, and subtracting another 90 or so life memberships, you can do the math and see how this impacts our budget. Enough with the wet noodle beatings; we have plants to discuss.

I am very pleased to announce progress on the Carl Hunter memorial project we had announced at the Ft. Smith meeting in the fall. The Ozark Society, through its agent, the University of Arkansas Press, has agreed to give the ANPS a substantial discount in our campaign to place *at least* one of Carl Hunter's books in every public library in Arkansas. The libraries that already *do* have a copy often must restrict circulation to a reference book, and this donation should free up at least one copy to be checked out and see the light of meadow and mount.

The Executive Board agreed to set a goal of placing at least a single copy of *Wildflowers of Arkansas* in each library for the great price of \$4,860. The exact number I'm being deliberately vague about here in print since our partners, UA Press, indicated they didn't want to make any current retailers jealous of our purchase price. Trust me, it is a generous discount. We actively solicit

memorial donations to the Society to help reduce the amount of drain on the Operating Funds. Donations should be either given at the Spring Meeting or can be mailed to the treasurer.

I have also been actively seeking out either an Arkansas based company or a foundation in order to partner with ANPS on this worthwhile project. Any additional donation given from a partner could help us place perhaps a complete set of Hunter's book in each public library, and eventually even do the same for the school libraries in the state. At present I already have one favorable response and am hopeful I can announce something at the Mena meeting.

On a related note, the Executive Board also voted to again support the Arkansas Envirothon and the Audubon Camp, projects we have donated to in the past. We are proud to be sending contributions to those great educational activities, and appreciate those who organize them and help future generations understand the responsibility we all have of protecting our beautiful planet. Additionally, we will initiate an annual ANPS Award for \$100 at the Arkansas Science Fair (the state-level competition). The project that best exemplifies conservation, and when possible, Arkansas flora, will be selected for the honor.

During the Board's planning session, we addressed the structure of the officers of the Society and how best to balance the work among us. Previously, we had noticed the bylaws seemed to really assign no continuing duties to the President-Elect, so we pounced on that and reasoned that publicity and communications was a good area that needed an extra push. To that end, please note in this *Claytonia* a revision of the necessary bylaw to precede a vote in the General Meeting in Mena. There are also two other recommended changes. The Arkansas Conservation Coalition no longer is extant, so all references to it in our bylaws have been stricken. The other change proposed is the consolidation of the Historian duties with the Secretary position. It has been difficult to get substantive work in the Historian position, so we reasoned it has added to Board size without increasing Board output, challenging our ability to reach a quorum at some meetings.

There are more details of plans we will discuss for the Society at Mena, but I have waxed long already. Please make every effort to attend the Spring Meeting and, as I said last year, BRING A FRIEND!

Waiting for the blizzard that never comes,

Jason K. Anders
ANPS President

New ANPS Members

The following people have joined the Arkansas Native Plant Society since the last issue of Claytonia:

Mike Amason (Calion, AR)
Danny Barron (Chelsea, OK)
Yvonne Becker (Hot Springs Village, AR)
Cathie Connaughton (Conway, AR)
Josie Farrell (Hot Springs Village, AR)
Maranda Henley (Rison, AR)
Thomas H. Hooper (Fort Smith, AR)
Kathryn Huie (Drasco, AR)
Don Kurz (Jefferson City, MO)
Norman & Cheryl Lavers (Jonesboro, AR)
Bonnie Leonhardt (Muscogee, IA)
Donald Long (Jasper, AR)
Barbara & Donald Massey (Pine Bluff, AR)
Kathy & Andy Radomski (Almyra, AR)
Mark Robertson (Little Rock, AR)
Julie Sparks (Monticello, AR)
Susie Teague (Lonsdale, AR)
Michael Weatherford (Warren, AR)

We welcome these new members to the ANPS!

Proposed Amendments to the Bylaws

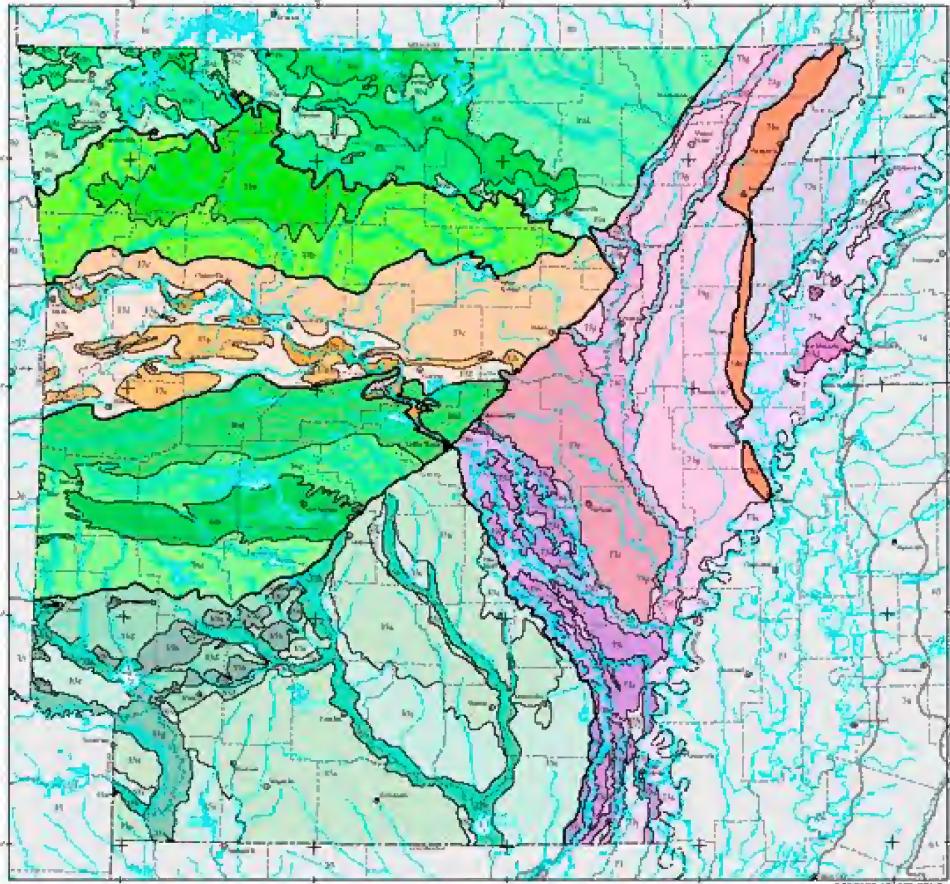
The Executive Board has reviewed the current Bylaws and would like to announce the following proposed revisions, to be voted on at the Spring Meeting in Mena:

- 1) All references to the Arkansas Conservation Coalition Representative have been stricken from the Bylaws. The Coalition no longer exists, so the references are all obsolete. The current directory already reflects this deletion, but formal approval to delete will be voted upon in the upcoming General Meeting.
- 2) It is hereby proposed that Article V, Section 1 be amended to delete the offices of Historian and Communications/Publicity Chairperson. The recent attempts by the Nominating Committees have proven that these positions are not generally supported by the membership and the functions have often remained undone. Further, the inclusion of the offices without persons hurts the Board in reaching quorums.

3) Article V, Section 4 will be amended to include the role of Communications and Publicity in addition to the other stated duties. The Board thought this a natural fit because the Vice-President had few previously assigned duties.

4) Article V, Section 5 will be amended to include the duties of archiving. The role of Historian is assumed to be dissolved, but the Secretary will be expected to be the keeper of records and archives of Society history.

The specific rewordings of the amended bylaws, as well as renumbering of sections after deletions, will be presented for review in print at the Spring Meeting. These summary descriptions are provided in the Claytonia in keeping with the spirit and intent of Article IX of the Bylaws. Please consider these changes in advance in order to be prepared to vote after discussion at the General Meeting.



Detail from the new Level IV Arkansas Ecoregion Map. Now available in pdf or hard copy. This map helps explain the distribution of plant species and communities.

New Arkansas Ecoregion Map & Poster Available

A number of state and federal agencies have collaborated to produce a large format (45" x 36"), two-sided, full-color map of the Level IV Ecoregions of Arkansas. This "Level IV" treatment takes things a step beyond the typical six division Level III treatment that you are probably familiar with (Ozarks, Ouachitas, Arkansas Valley, Coastal Plain, Mississippi Alluvial Plain, & Crowley's Ridge). This new map splits the typical six major divisions into seven (by splitting the Ozarks into the Boston Mountains and the Ozark Highlands) and recognizes a number of subdivisions of each (the Level IV Ecoregions). It recognizes the following: the South Central Plains (with 6 subdivisions), the Ouachita Mountains (with 5 subdivisions), the Arkansas Valley (with 4 subdivisions), the Boston Mountains (with 2 subdivisions), the Ozark Highlands (with 4 subdivisions), the Mississippi Alluvial Plain (with 10

subdivisions), and the Mississippi Valley Loess Plains (1 division).

This is more than just a map though. There are detailed descriptions of each of the 32 Level IV Ecoregions, discussing landforms, geology, soils, vegetation, climate, and land use. There are also a bunch of color photos and tables. The map also includes a smaller map showing the level III Ecoregions for the entire conterminous U.S., so you can see how Arkansas fits in to the bigger picture. It would be difficult for the reader to comprehend the immense amount of information contained in this poster without seeing it for themselves, so check it out.

The poster is available for download as a pdf file in the full format or in two abbreviated formats from the EPA website at www.epa.gov/wed/pages/ecoregions/ar_eco.htm. The map is also available for download as a shapefile for ArcView. Hard copies are available for purchase from the U.S. Geological Survey.

PLANT OF THE ISSUE: ARKANSAS TWISTFLOWER



Arkansas twistflower (*Streptanthus maculatus* subsp. *obtusifolius*). West Pulaski County. Photo by Theo Witsell.

Several years ago, near the end of April, I was climbing a steep sandstone outcrop near the top of Blue Mountain, the western-most peak of the Maumelle Pinnacles, west of Little Rock. I came up over a ledge to find an absolutely breathtaking display of color. Above the ledge was a steep open glade of blue-grey Jackfork sandstone, spotted with large patches of *Xanthoria*, a brilliant orange lichen. Scattered among these, on vertical rock faces and under small overhangs were patches of the fluorescent yellowish-green gold dust lichen (*Chrysothrix candelaris*). Wherever a little soil had accumulated there were tufts of the woolly lip fern (*Cheilanthes tomentosa*), brilliant yellow coreopsis, and four colors of Ohio spiderwort (white, purple, blue, and pink). Scattered among all of these was one of the most beautiful wildflowers I had ever seen, which I was at a loss to identify. This last species had big erect spikes of brilliant four-petaled purple and pink flowers, and large, grey-green leaves with a waxy, whitish coating. I sat down smiling, in awe of this magnificent scene, framed with gnarly old post and blackjack oaks, with scraggly farkleberry shrubs and hoptrees growing here and there out of cracks in the sandstone.

I took a small piece of this last species home with me to key out and was thrilled to find that I had found something rare, a species whose common name alludes to its status as something all our own: Arkansas

twistflower. In Arkansas we have three twistflowers, all in the genus *Streptanthus*, of the mustard family (Brassicaceae or Cruciferae). All are rare, in one sense or another, and all are annuals. One, *Streptanthus hyacinthoides*, is found in Arkansas only in the deep Gulf Coastal Plain sand barrens of Ouachita, Nevada, and Miller Counties, but is also found in Texas, Oklahoma, and Kansas. The second, *S. squamiformis*, is a Ouachita Mountain endemic, occurring in both Arkansas and Oklahoma, but nowhere else in the world. The third, *S. maculatus* subsp. *obtusifolius*, is found only in the Ouachita Mountain and Arkansas River Valley in Arkansas. It was this last one that I had found that wonderful day atop Blue Mountain!

Arkansas twistflower cannot tolerate the dense shade that often accompanies richer, deeper soils, and so is confined to the most rocky and barren habitats. You can find it just west of Little Rock in sandstone glades and outcrops at Pinnacle Mountain State Park, in novaculite (chert) glades from Hot Springs to Albert Pike Recreation Area, and in shale barrens around Lake Ouachita. It blooms in late April and early May and is certainly one of the showiest plants in the flora. It is presently known only from Faulkner, Garland, Hot Spring, Howard, Montgomery, Pike, Polk, Pulaski and Saline Counties, Arkansas. Like most of our glade and rock outcrop plants, Arkansas twistflower responds very well to fire and has increased at a number of sites where regular burning occurs.



Typical Arkansas twistflower habitat in the Ouachita Mountains. Blue Mountain. West Pulaski County. Photo by Theo Witsell.

ARKANSAS NATIVE PLANT SOCIETY

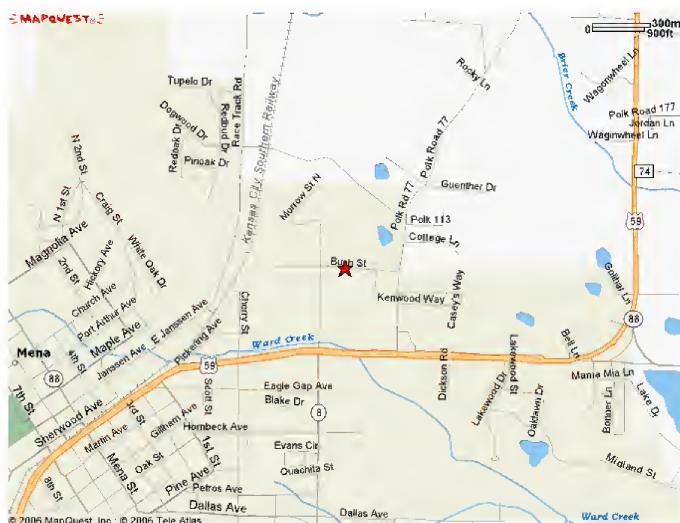
SPRING 2006 MEETING

APRIL 28-30, 2006

Rich Mountain Community College (RMCC) Mena, AR

The Friday and Saturday Meetings will be held on the campus of Rich Mountain Community College, 1100 College Drive. Registration, refreshments, and socializing will take place in the Tower Room of the Ode Maddox Building with programs to be held in the Lecture Hall of the Spencer Building (the two buildings are next to one another and are connected by a hallway).

The main highway in Mena is Hwy 71 and many of you will be entering town on this highway. Directions to RMCC from Hwy 71 are as follows: from the north (before historic downtown), turn right at the stoplight on Morrow Street North (this is the first stoplight from the north). Then turn right on College Avenue (also called Bush Street, as it is on the map below). RMCC is on the left. From the south (after going through historic downtown), turn left at the aforementioned stoplight on Morrow Street North and follow directions as above. (Hwy 71 is the wider line extending from the top right to lower left of the map. It is labeled as Hwy 59 on this map. The star indicates the location of RMCC.)



Registration will be in the Tower Room from 4:30 pm - 7 pm Friday. Lana Ewing will treat us to a slideshow program on the local flora at 7 pm! The Executive Board Meeting will follow the program.

Saturday morning we will be traveling to the Cossatot River State Park – Natural Area Visitor Center for a program/hike led by Park Interpreter and ANPS member, Stephen Walker. There will be several additional hiking opportunities throughout the day, all to be announced Friday night. At 7 pm our own Lori Spencer will give us a program on butterflies! The Business Meeting will follow her program.

Lodging information is provided below.

I look forward to seeing you all in the BEAUTIFUL Ouachita Mountains in April!!

If you have questions or need assistance, contact:

Brent Baker
btb2001@hotmail.com
479-970-9143

Lodging:

Sun Country Inn
1309 Hwy 71 N
Mena, AR 71953
479-394-7477
Toll free at:
1-877-394-7477
www.suncountryinn.com

This is the newest motel in Mena. It is just a couple blocks from RMCC on the main highway (71). Coming from the north on Hwy 71, it will be on the left a little before the first stoplight (see directions to RMCC) or on the right a little past the stoplight if you are coming from the south. We have 20 rooms reserved here at a discount rate of \$59 plus tax (13%). This rate is for 2 people per room; each additional person is \$6 extra. You must mention ANPS to get this rate and **must reserve by April 10**. Pets are not allowed at this one.

Limetree Inn
804 Hwy 71 N
Mena, AR 71953
479-394-6350
Toll free at:
1-800-536-4366
www.limetreeinn.com

This is an older motel, although it has had some remodeling. The standard rate is \$59 plus tax (13%) for a double room (2 people). It is also on the main highway (71) just a few blocks from RMCC. Coming from the north on Hwy 71, it is on the right immediately past the first stoplight (see directions to RMCC) or on the left immediately before the stoplight coming from the south. Small pets are allowed.

Budget Inn
1018 Hwy 71 S
Mena, AR 71953
479-394-2400

This is an older, smaller motel, and is a little cheaper. However, it is across town from RMCC on Hwy 71 South. Standard rates run in the lower to mid- \$40 range plus tax.

For those of you who like to camp or stay in cabins, a few possibilities are listed below (there are numerous other possibilities, some of which can be found at www.gomenaarkansas.com):

Queen Wilhelmina State Park
3877 Hwy 88 West (13 mi. west of Mena on Rich Mountain)
Mena, AR 71953
479-394-2863
Toll free at:
1-800-264-2477
www.queenwilhelmina.com

Tent sites (starting at \$9/night) and RV sites (\$17.50/night) are both available and can be reserved. In addition to campsites, the lodge offers rooms as well, with a double running about \$82/night.

Wolf Pen ATV Campground
559 Polk 61
Mena, AR 71953
479-394-0404
www.wolfpenatv.com

Tent, RV sites as well as cabins available.

Renegade Ranch
3680 Hwy 88 East
Mena, AR 71953
479-394-3848

Tent sites (\$5/night) and RV sites (\$12/night) are both available. Cabins are also available.

Shadow Mountain RV Park
3708 Hwy 71 South (6 mi. south of Mena)
Mena, AR 71953
479-394-3494
www.shadowmountaincampground.com

In Memory

Two former ANPS members were not included in the recent Memorial Issue of the Claytonia and deserve special recognition here. Oralee Price of Drasco and Gwen Barber of Russellville both died recently.

Oralee was a long-time ANPS member and led field trips in the Greer's Ferry lake area, including more than one to Big Creek Natural Area. She and her husband found the globally rare ovate-leaf catchfly at this site and documented it for the Arkansas Natural Heritage Commission. Oralee's family requested that interested people might make donations in her name and friends and family sent a total of \$300 to the ANPS. Thanks to all of them for their generosity in Oralee's name.

Gwen was also a long-time member of the Society. She worked recently at the Arkansas Tech University Herbarium, going through the entire collection confirming the identifications on the specimens for the Arkansas Flora Project. Her work in this capacity went a long way toward keeping erroneous reports out of the upcoming Flora Project publications. She did her masters thesis on the Flora of Franklin County, Arkansas and was a member of the Arkansas Vascular Flora Committee.

Both of these fine long-time members of the ANPS will be missed. Our thoughts are with their families.



Downy lobelia (*Lobelia puberula*) . Photo by Craig Fraiser

ARKANSAS NATIVE PLANT SOCIETY

FALL 2005 GENERAL MEETING MINUTES

Barbara Little moved that the minutes from the Spring 2005 meeting be accepted as they appeared in the *Claytonia*. Don Culwell seconded and the minutes were unanimously approved.

Barbara announced that the auction on Friday night brought in \$1,764.00. She passed out the financial report, noting one correction. The current balance was \$21,506.12, totaled among all funds. Jean Crone moved that the financial report be accepted. Gene Ford seconded. All agreed.

Eric Sundell gave a report on the status of the Arkansas Flora Project's upcoming *Checklist of the Vascular Flora of Arkansas*, saying that the final touches were being put on the checklist now by staff at the U of A Fayetteville Herbarium and Dr. George Johnson of Arkansas Tech. The new checklist will be very different from the ones in Ed Smith's *Atlas and Annotated List of the Flora of Arkansas* (1988) and his *Keys to the Flora of Arkansas* (1994), with many new species added and some omitted (on the basis of erroneous reports). Eric said he hoped that two more years of work would get the new Atlas out. Several people asked if the checklist would be available online. Eric said not immediately. Mary Ann King pointed out that the existing online version of Ed Smith's Atlas (on the Texas A & M Bioinformatics website) will conflict with the new effort and suggested that this be brought up at the next Arkansas Flora Committee Meeting.

Burnetta Hinterthuer reported that the Executive Board is exploring ideas of what the Society will do to memorialize Carl Hunter and asked the membership for ideas. Carl Slaughter asked that people send in writings for the memorial issue of the *Claytonia*. Theo Witsell said that only two pieces had been received so far. Jason Anders remarked that this is an issue to memorialize any member of the Society who has passed on. Jason said the deadline is Thanksgiving.

Jason reported that Society member Lou Burrows had died.

Eric said he wanted to formally thank Jason for writing the second obituary for Carl Amason that appeared in the Arkansas Democrat-Gazette. Many members echoed this sentiment and said that it did a good job of setting the record straight after an earlier obituary characterized Carl as a recluse (not true!).

Theo reported that, due to financial and time constraints, the *Claytonia* would come out twice a year, not four times as has been the goal.

Thera Lou Adams pointed out that the mailing list needs cleaning up, having a number of deceased persons still on it. Eric asked that if anyone knew of a deceased person still on the list (see the new directory), they should please let him know.

Burnetta said that the Executive Committee will meet in January and get the issue of a memorial for Carl Hunter and Carl Amason worked out. For now, donations in Carl Amason's name will be set aside. It was reported that the Louisiana Native Plant Society had sent \$200 in memory of Carl Amason. Eric reported that he had also received several donations in his name.

Burnetta said that she will take over as chair of the Scholarship Committee with Eric Sundell and George Johnson on the Committee. She will report on the committee's activities at the Spring Meeting. The Nominating Committee is seeking a nominee for Vice President for when Brent Baker rotates into the President Elect position.

Jason reported that the Executive Committee voted to take the proceeds from the auction, which normally go into the Aileen McWilliams Scholarship Fund, and put them into the General Fund to be sure there were enough finances to publish the next *Claytonia* and cover other expenses. This was voted on and approved. Jason also noted the need to vote on the amended bylaws as published in the last issue of *Claytonia*. Mary Ann moved to approve them as published. Jason seconded. It was approved unanimously.

Thera Lou announced that Carl Amason's property was now owned by his nephew, who needs help in identifying plants in Carl's gardens. She asked that anyone who could help in this effort call Carl's number and offer to come down and help. She suggested that we pick a date and offer to send a team down to help. The date was discussed and set for October 29, 2005.

Jason Anders moved to adjourn. Jean Crone seconded.

Respectfully submitted,
Theo Witsell (Acting Secretary)

Classifieds

Invasives Species Field Guide Needs Help from ANPS

Members— Jude Jardine is still working on updates to the Invasive Species Field Guide. She needs good photos of a number of common exotic invasive plant species. For a list of images needed, please contact Jude at jkjardine@netscape.com or call 501.676.5535.

Announcements

Botanical Training Center Workshops

The Institute of Botanical Training is offering a number of plant identification classes throughout the Midwest in 2006 which will cover a variety of topics. Classes this year will take place in MO, IL, IN, KY, OH, MI and WI. Workshop topics include: Wetland Flora, Advanced Wetland Flora, Midwestern Flora, Ozarks Upland Flora, Prairie Flora, Tree Identification and "Grasses, Sedges and Rushes". Workshops are 3-4 days long, depending on the topic and take place primarily in the field. These classes are perfect for people who need to hone their botanical skills for professional purposes, or for serious amateur botanists.

The 2006 Workshop Schedule and detailed information is posted on their website at www.botanytraining.com. To register for a course or if you have questions, please call 317-430-6566. Participants who register before April 1, 2006 will receive \$50 off the price of a class.

New Website Featuring Arkansas Plants and Scenic Images

ANPS member Craig Fraiser has launched a website that features some outstanding photos of Arkansas plants, waterfalls, and other impressive scenery. You can visit the site and post comments at <http://www.pbase.com/cmf46>.

Audubon Ecology Summer Camp

The Arkansas Audubon Society is sponsoring an Ecology Camp for 11 and 12 year old kids at Camp Clearfork west of Hot Springs in the Ouachita Mountains. This summer's camps, each 6 days, will run June 11-16 and June 18-23. Great facility, great food, great great staff, and great great great experience for kids. More information and

application form for the camp are at www.arbirds.org or folks can e-mail Liz Fulton, the Executive Director, at efulton@aristotle.net or phone her at 501.663.9380.

Audubon Arkansas Natural History Workshops

The Arkansas Audubon Society is also sponsoring adult natural history workshops in the fall at Ferncliff Presbyterian Camp just west of Little Rock. There will be two to three workshops, each running Friday noon to Sunday noon, Oct. 6-8, 2006. Dr. Eric Sundell will be teaching a tree identification workshop for beginners and intermediates. Dr. Jim Edson will be offering a geology, rocks & minerals, and land forms workshop with evening activities on monarch butterflies (Jim is also the monarch coordinator for Arkansas and does a lot of butterfly banding, larvae raising, milkweed growing, and monarch watching work with school kids). There may be a third workshop on insects. Folks interested in attending should contact Barry Haas at bhaas@sbcglobal.net. Each workshop will have room for 12 participants and will include board and for folks from the hinterlands, motel-type rooms at Ferncliff. The food and accommodations are excellent.

Arkansas Flora Project Memorials

A donation was made to the Flora of Arkansas Project in memory of Lou Burrows from Don Crank.



Yellow honeysuckle (Lonicera dioica). Photo by John Pelton

*Oh, take me home to Arkansas,
Where redbuds bloom,
Where the streams flow clear.*

*I have a bond with Arkansas,
And when my days are done,
I'll die in Arkansas.*

- Song by Bill Shepherd

UPCOMING EVENTS & FIELD TRIPS

April 1st 10:00 a.m. Johnson Pear Farm/Round Mountain. South of Fayetteville on Hogeye Road. Meet at 9:30 a.m. at the U of A Baseball Field on Razorback Road, just south of Hwy. 16, and we will car pool or follow the leader to the site. This site is now an Ozark Regional Land Trust site; a group has formed to explore environmentally-sound housing and land-use options for a portion of this land. The group is hoping to identify species that are rare/endangered and those that are invasive. Call Burnetta at 479-619-4394 for further information or if you are interested in volunteering with the group in identifying plants.

April 7th & 8th Arkansas Academy of Sciences Meeting at Lyon College in Batesville. For more information see www.lyon.edu/webdata/groups/science/aas_2006/.

April 22nd 7 p.m. Prairie Mole Cricket Count on Chesney Prairie, Siloam Springs, AR. For the past three years, Joe Woolbright has invited ANPS members to help count prairie mole crickets on Chesney Prairie. The success of the count is always dependent on the weather and varies from year to year. If you are interested, please give Joe a call at 479-427-4277 the week before the 22nd to make arrangements and for directions on where to meet. You will get to see this amazing prairie that Joe has helped restore as well as many early wildflowers. Last year, the shooting stars were resplendent.

April 28-30th Mena, Arkansas. State ANPS Meeting. Rich Mountain Community College. See detailed info elsewhere in this issue.

May 13th 10:00 am. Trip to Larry Buford's property near Taylor, Arkansas. Larry will lead this trip to see his collection of trees and shrubs. Larry has 85 kinds of oaks on his place as well as many more unusual trees and a large collection of daylilies. Directions: from Magnolia, take 371 south to Taylor. Continue south 6 more miles to the Welcome community sign (note: this is almost in Louisiana). Turn left onto Columbia County Road 21. Larry's house is the second one on the left. Give Larry a call at 870.859.4786 so he knows how many to expect.

May 20th 10:00 a.m. "Hole in the Rock" - Bill McNamara will lead us to Hole in the Rock. This natural area is located near the Sweden Creek Natural Heritage site. Park opposite the Elkhorn Road at the Elkhorn Church parking lot which is just north of Hwy. 21, across from the Sweden Creek road that leads to Hole in the Rock. We will meet there and carpool to the site. Please contact Burnetta at 479-582-0317 so she can get a head count.

May 27th 10:00 am. Moccasin Creek Field Trip. Susan Hooks will be leading a field trip to a site on Moccasin Creek

in Garland County on May 27th at 10:00 am. The hike will be on trails and is easy walking. The site has yellow lady slippers, green trilliums, wild ginger, pawpaw, etc. It also features a shale glade. Meet at the Castleberry Store at the intersection of Hwy 7 and Hwy 298. Bring a lunch. Contact Susan Hooks for more info or to reserve a spot. 501.321.5323 or email: shooks@fs.fed.us.

May 27th 10:00 a.m. Zee Reader purchased land in the King's River drainage that she is hoping to preserve, perhaps as a wildlife refuge. The land has a large cedar glade, bottomland fields, and fronts a tributary of King's River. Perhaps we will find earleaf gerardia habitat on the glade; this is a species we found two years ago at Saunders Heights in Berryville. If coming from Fayetteville or points west, meet at Pine Mountain Village parking lot in Eureka Springs at 9:30 a.m. and there will be a guide to follow to site. PMV is just past the intersection of Hwys. 23 and 62 about 1/4 mile on the left. If coming from the east, meet at the Frontier Outpost, a convenience store that is just west of Berryville city limits. A guide will meet you there. Zee and Steve Smith will give us a tour of the property. Call Burnetta if you have further questions 479-619-4394.

June 10th 10:00 a.m. Field Trip to the Shortleaf Pine-Bluestem Ecosystem Restoration Area, Ouachita National Forest, near Waldron, AR. Bring a sack lunch, water and comfortable hiking shoes.

The pine-bluestem project is an ongoing effort by the USDA Forest Service to restore a once widespread habitat in the Ouachita Mountains. The project area includes approx. 200,000 acres in western Arkansas and eastern Oklahoma. This habitat consists primarily of shortleaf pines and mixed-species hardwoods, in open stands, with the openness obtained by thinning harvests and maintained with prescribed burning. This is habitat for the Red-cockaded Woodpecker, a Federally-listed Endangered species, plus numerous other plants and animals that require the open, sunny conditions of woodland habitat. The flora is highly diverse and includes showy species like pale-purple coneflowers, rare insects like the Diana fritillary, and many species typical of Tallgrass Prairies.

Meet at the Forest Service office in Waldron at 10 AM. The office is located just off the intersection of US 71 and 248 at Waldron. Note the sign at this intersection. The office is visible in the southwest corner of the intersection. If you are traveling on 71, turn West on 248, travel no more than one block, and make the first left turn onto the drive to the Forest Service office.

For additional information about the pine-bluestem project, contact Forest Service biologist Joe Neal 479-637-4174 (Waldron) or 479-521-1858 (Fayetteville).

BOOK REVIEWS

The Orchids of Lovell Hollow and Heartsong Retreat Center: An Enumeration and Description of the Wild Orchids of Lovell Hollow in Newton County, Arkansas

Text and photos by Olin Karch

This full-color 29 page booklet features very detailed treatments of 14 species of native orchids that the author found and photographed in Lovell Hollow adjacent to the Upper Buffalo River in Newton County, Arkansas. It is extremely well done, with beautiful photographs (three or more per species) showing various parts of each plant.

The treatments include common and latin names, blooming period, range maps (by both state and county within Arkansas), habitat, description, ecology, history of use, and natural history. Also includes a nice introduction with general information about orchids, a chart showing in which months the foliage and flowers of each species can be seen, and an index.

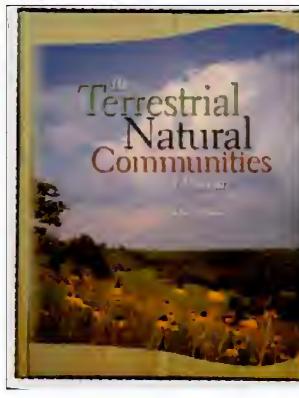
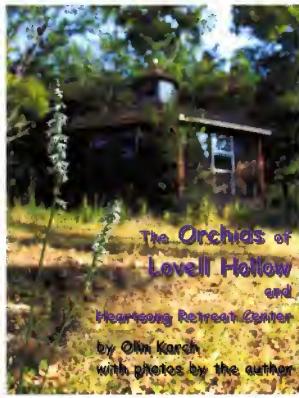
A must for anyone interested in Arkansas' orchids!

Copies are available from the author for \$15 postpaid. Write to Olin Karch / HC 62 Box 826 / Deer, AR 72628
— Reviewed by Theo Witsell

The Terrestrial Natural Communities of Missouri (Revised 2005 Edition)

By Paul W. Nelson

Hardcover. 567 pages. 300 color plates. Produced by the Missouri Natural Areas Committee. Available from the Missouri Department of Natural Resources. Cover price = \$29.98, plus \$6.00 s&h. Call 1-800-334-6946 or download an order form at www.mostateparks.com/terrnatcom_order.pdf.



This remarkable update of the 1985 book by the same name is one of the most exciting and comprehensive works on the ecology and native plant communities of the region. Ever. Without a doubt, this will be the bible of ecologists and land managers in Missouri for years to come. It is applicable to much of Arkansas as well, not only the Ozarks and the Mississippi Alluvial Plain, which we share with Missouri, but to other areas as well. It also explains a lot of the principles of conservation planning, ecological land management, and ecological restoration that are being adopted by state and federal agencies and private conservation organizations.

Chapters include Biogeography of Missouri, Ecological Management, Conservation Goals and Planning, and Describing Terrestrial Natural Communities. There is also a lengthy bibliography, a detailed glossary, and five appendices including a key to the natural communities.

A total of 85 types of 9 different general communities are described in detail. The general communities, followed by the number of types of each, are: Forest (15 types), Woodland (18 types), Savanna (6 types), Prairie (12 types), Glade (5 types), Cliff/Talus (11 types), Stream Edge (3 types), Wetland (13 types), and Cave (2 types). As an example, under the general prairie community, the following types are treated: 1) dry loess/glacial till prairie, 2) dry-mesic loess/glacial till prairie, 3) mesic loess/glacial till prairie, 4) dry limestone/dolomite prairie, 5) dry-mesic limestone/dolomite prairie, 6) dry-mesic chert prairie, 7) dry-mesic sandstone/shale prairie, 8) prairie swale, 9) sand prairie, 10) hardpan prairie, 11) wet-mesic bottomland prairie, 12) wet bottomland prairie.

For each general community (e.g. forest, savanna, etc.), there is a discussion describing the general character and structure of the community, natural and manmade disturbances, threats, protection and management, and animals (from bison to ants). Each community type entry includes a section on vegetation description, physical characterization, natural processes, dominant plants (canopy, understory, shrubs and vines, herbaceous layer, even lichens for some communities!), characteristic plants, plants restricted to the community (if any), community variation and subtypes, associated natural communities, pre-settlement distribution and size, representative sites, status, threats, and management considerations. There are also color maps showing the range and abundance of the type in Missouri.

BOOK REVIEWS

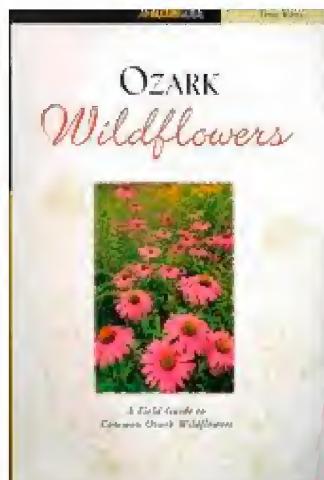
This book includes a wealth of historical data outlining the effects of human activities on the landscape from prehistoric times to today. Nelson draws on all the available evidence, from studies of pollen profiles in the soil to tree growth ring and fire scar analysis to archaeological evidence, to document and explain the changes in plant community structure and composition in the region.

Perhaps the most impressive thing about this book, aside from the staggering amount of information and detail, is the wealth of excellent color photographs and artwork! These, combined with an abundance of color maps, charts, and tables, make this a very well-illustrated volume.—*Reviewed by Theo Witsell*

Editor's note: Two books with the same name have come out in recent years on the subject of Ozark wildflowers, and it seemed like a good idea to review them together. Thanks to Bill Shepherd for doing the bulk of the careful work of reviewing these.

Ozark Wildflowers: A Field Guide to Common Ozark Wildflowers.

Don Kurz.
1999. Falcon Publishing.
Introductory matter. 355
species illustrated with color
photographs by the author,
another 84 species
discussed. 262 pp.
Softcover, \$19.95.



and Ozark Wildflowers:
An Ecological Guide to
Flowering Plants in the
Region. Thomas E.
Hemmerly. 2002.
University of Georgia Press.
Introductory matter.
Illustrated with "more than
250" color photographs, all
but one of them by the author. "More than 600 species"
differentiated in text. 240 pp. Softcover, \$24.96.

We are lucky to be living in affluent times, a day when collections of beautiful wildflower portraits can be published in books that address the floras of states already well covered by earlier field guides that were themselves well illustrated with color photographs. We are referring, in particular, to the book by Carl G. Hunter that covers Arkansas wildflowers and those of Edgar Dennison and Bill Summers covering Missouri wildflowers. Neither of the two new books reviewed here was truly needed in the sense that people

needed their predecessors.

But that's all right. If a book gives pleasure and is instructive, no further reason for publishing it is required.

One would hope, however, for accuracy in information. And that goal is unequally achieved by the two authors.

The reader of the Hemmerly tome gets fair warning that there are going to be problems when he reads in the second sentence of the Author's Notes that the Jot-em-down Store of old-time radio duo Lum and Abner was set in "Pine Bluff, Arkansas." (As many will recall, the fictitious general merchandise store was located, not in Pine Bluff, but in the fictitious village of Pine Ridge, a name that eventually was assumed by a hamlet in Polk County in order to cash in on the fame that the imaginary town acquired.)

To be charitable, we wonder if Hemmerly originally had another title in mind for his book, perhaps with a wider geographical focus, and that his publisher suggested the title that was finally used. Unfortunately, the final product fails in several particulars to measure up to the promise of the title, perhaps because too little time remained for revising the contents to conform with it. Though Hemmerly uses an

extremely broad definition of the "Ozarks," a definition that encompasses the Ouachita Mountains, his book still includes a few plant species that can't be considered part of the Ozark flora even by Hemmerly's expanded definition (e.g. silky camellia, known in Arkansas only from Ouachita County, and two-wing silverbell, known in Arkansas only from Lafayette Co., both counties located entirely in the West Gulf Coastal Plain).

While both books are remarkably free of typographical errors (though the Hemmerly opus misspells *Spiraea* twice on p. 152 and again on p. 153), Hemmerly does manage to make several errors of plant identification. These are worth pointing out, lest they mislead the unwary.

- The photograph on p. 59 supposedly representing foxglove beardtongue (*Penstemon digitalis*) portrays another white-flowered species of that genus.
- Similarly, the plant labeled on p. 95 as the common meadow parsnip (*Thaspium trifoliatum*) is actually hairyjoint meadow parsnip (*T. barbinode*) and the "*Coreopsis palmata*

" on p. 99 is actually *C. grandiflora*.

- On p. 105 a species of green eyes (*Berlandiera* sp.) is misidentified as ashy sunflower (*Helianthus mollis*).
- And the common bluestar "*Amsonia tabernaemontana*" on p. 183 is shining bluestar (*A. illustris*) instead.
- More seriously, the plant identified on p. 207 as the harmless false nettle (*Boehmeria cylindrica*) is, in fact, wood nettle (*Laportea canadensis*), a nettle that can cause considerable pain when its leaves or stems touch human skin.

Hemmerly's loose grasp of Arkansas county geography shows on p. 134, where he puts Jefferson County in the "Ozarks," and on p. 152, where the central Arkansas population of steeple-bush is placed in the Ozarks "near the Arkansas River." (It is entirely within the West Gulf Coastal Plain.)

What is Hemmerly talking about on p. 68 when he states that "the genus *Prunus* includes native Ozarkian trees called cherry and peach" [emphasis added]? A native peach? Certainly news to us!

Such gaffes should have been corrected before the book went to press, and could have been if an appropriate specialist or two had been asked to review the material at the right step in the production process. One wonders who the "two anonymous reviewers" mentioned in the acknowledgments might have been, as they appear to have been poorly chosen and let so many inaccuracies slip by.

The photographs in both books will please regardless. Both volumes were printed in Korea, and the quality of the color reproduction does the Korean printing firm or firms credit. All the more remarkable because the photographers presumably were not present in the printing plant(s) and thus were unable to critique and adjust the color balance as the pages rolled off the press.

Both Kurz and Hemmerly organize their books according to flower color rather than by plant family. While this arrangement sometimes frustrates those who prefer to group families together, each book has a good index, so everyone should be able to find what they are looking for.

A quick look at the numbers presented at the head of this review will indicate that the potential book buyer can get more for his or her money by choosing the Kurz work. One explanation is the increasing cost of publication; so the earlier volume costs less. On the other hand, Kurz limits his scope strictly to the Ozark Mountains as that region is commonly understood, so his book does not deal with species that distinguish the Ouachitas.

But isn't it great that there is so much interest in our native flora! We'd raise no objections to publication of even more books on the subject. — *Reviewed by Bill Shepherd and Theo Witsell*.

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The purpose of the Arkansas Native Plant Society is to promote the preservation, conservation, and study of the wild plants and vegetation of Arkansas, the education of the public to the value of the native flora and its habitat, and the publication of related information.

CLAYTONIA

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CLAYTONIA

Newsletter of the Arkansas Native Plant Society

Vol. 26 No. 2
Fall/ Winter 2006

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New Checklist of the Vascular Plants of Arkansas Available

After much anticipation, the new *Checklist of the Vascular Plants of Arkansas* will officially be available on September 11, 2006. The checklist, compiled by the Arkansas Flora Committee after an extensive inventory of more than 250,000 herbarium specimens from Arkansas, documents the 2,896 kinds of vascular plants known to occur outside of cultivation in Arkansas.

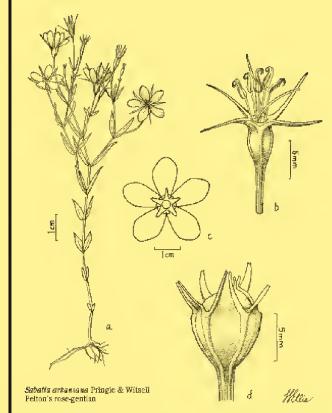
This work replaces the list appearing in the second edition of Dr. Ed Smith's *Atlas and Annotated List of the Vascular Plants of Arkansas*, which was published in 1988 and has long been out-of-print and unavailable. Smith's *Atlas*, while a great resource, is incomplete, based primarily on the collection at the U of A Herbarium at Fayetteville with data from only partial inventories at selected other in-state

herbaria. This new checklist is the first based on a comprehensive inventory of all in-state herbaria, as well as the University of Louisiana at Monroe, where the extensive Arkansas collections of Dr. R. Dale Thomas and a number of his graduate students reside. Each name appearing in the checklist is vouchered by at least one herbarium specimen.

In addition to the inclusion of 427 plants not included in Smith's *Atlas*, the new checklist brings the Arkansas flora up to date with modern, accepted taxonomy and classification of plant families and genera. Also, the list is annotated to show whether or not each plant is native, invasive, endemic, or of conservation concern. It includes introductory material with a history of Arkansas botany and an appendix listing the state species of conservation concern with their state and global conservation status ranks. There is also a comprehensive index to names, including synonyms used in Ed Smith's *Atlas* and his *Keys to the Flora of Arkansas* (1994), as well as helpful tips for finding species that are in different families than those that people are used to.

Big taxonomic changes users will notice since Smith's books include: 1) the splitting up of the genus *Aster* into the following genera: *Sympyotrichum*, *Eurybia*, *Doellingeria*, and *Ionactis*, and 2) division of the Liliaceae (lily family) into 14 families: Agavaceae, Alliaceae, Amaryllidaceae, Asparagaceae, Colchicaceae, Hemerocallidaceae,

CHECKLIST OF THE VASCULAR PLANTS OF ARKANSAS



ARKANSAS VASCULAR FLORA COMMITTEE

Hyacinthaceae, Hypoxidaceae, Liliaceae, Melanthiaceae, Nartheciaceae, Ruscaceae, Smilacaceae, and Themidaceae. Fortunately, all this is covered in the index so you'll be able to navigate these changes without a lot of hassle.

Funding and other support for the project (including field work in under-collected counties) was provided by the Arkansas Native Plant Society, the Arkansas Natural Heritage Commission (an agency of the Department of Arkansas Heritage), the Ouachita National Forest, and the Arkansas Game and Fish Commission.

This checklist lays the foundation for the upcoming *Atlas of the Vascular Plants of Arkansas*, which will provide county level distribution maps for each species on the checklist. Data collected from specimens examined for the checklist are being entered into a database which is being used to generate the county level distribution maps at the U of A Herbarium at Fayetteville.

Copies are available for \$22.50 postpaid from: Coordinating Office / Arkansas Vascular Flora Project / University of Arkansas Herbarium / Biomass Research Center 141 / University of Arkansas / Fayetteville, AR 72701 / ATTN: Johnnie L. Gentry. All shipments will be sent book rate via US Postal Service. Make checks payable to the University of Arkansas Herbarium for the AVF Checklist.

A DISCOUNTED RATE OF \$20.00 POSTAGE PAID WILL BE OFFERED TO ALL ANPS MEMBERS.—*Theo Witsell*

President's Greeting

As I write this, the hot wind blows across the Serengeti and a pack of wild dogs barely stirs amid the dry brush at noon time. No, wait. That's just my two dogs on the front lawn. Dry, dry, dry, and I don't just mean my humor.

Still, even in the grips of scattered drought in Arkansas, it is ever interesting to be observing the transition of the native landscape as it adapts to a changing climate, be it a short term fluctuation or a long term trend. Some species buck up and show their stuff under the added pressures of the shift to arid, while others reveal just how narrow is their hold on life in Arkansas. No doubt this is stressful for many to behold and contemplate, and there may not be "solutions" to the changes we are perceiving about us, but we *can* observe and make helpful notes that can benefit conservation and preservation in recording characteristics of our native species.

On a more human scale, it has been a blur of a year for me as president. How do Bush, Clinton and the rest ever get anything done in four year terms, much less a one year? In all seriousness, I guess it's not reasonable to expect some huge change in the ANPS in one officer's term, and we want sustainability and reliability along with progress, so we press on.

That brings me to an actionable point. Our Nominating Committee has done a fine job of securing a nominee for Treasurer and for Membership Chair, but as yet, we are still without a Vice-President nominee. I am disappointed to report that this has become a trend in the Society over the last several years. Many members may assume that a total membership of over 300 means that there is a large pool of potential workers in the Society, but that may be misleading. Of the total number, there are several institutional memberships, several out of state, and then several who are unable to attend the meetings. This leaves a smaller core of active members to do the work of advancing the worthy goals of the Society. That may mean moving up the ANPS in the priorities ranking, or considering rotating back in a former officer. My appeal is not a hand-wringing or an alarm, but from my experience over the last 20 years as a member, this is a growing concern in terms of viability. As an advocate for the causes of education, preservation, and conservation of Arkansas' native plants, I am not ashamed to ask for help in our endeavor. Please consider what you might be able to do to make the Society a more effective organization.

The Executive Board just met in early August for the third session of the year, and there are several ongoing activities to report:

- 1) The Society continues to work toward placing a copy of one of Carl Hunter's books in each of Arkansas' more than 200 public libraries. The cost will be over \$5,000 even with a generous discount off the cover price. As we work to find a possible corporate partner, we are again resuming our application for charitable status as a 501(c)3 organization for tax purposes. Of course, we don't want to rely solely on getting outside donations, but we simply don't have the means in our Operating Fund to underwrite this large project before year end. This may mean we are not able to complete this goal until sometime in 2007.
- 2) The Carl Amason Conservation Award to Mary Alice Beer is scheduled for presentation at a special gathering in late September. There is a separate article on this elsewhere within the *Claytonia*.
- 3) The creation of a bank of slide and/or a Powerpoint presentation for a Speakers Bureau on native plants is still underway, and we hope to have an example in hand at the Fall Meeting in Russellville.
- 4) Brent Baker has done great General Meeting preparation again and we are slated to meet at Dardanelle State Park Visitors Center at Russellville on October 20-22.
- 5) Unpaid memberships limit the Society's ability to fund Ecology camps, grant scholarships, print newsletters, fund special projects like The Flora of Arkansas, etc. If your address label on this newsletter has a '04 or '05 on it, please renew soon.
- 6) The annual plant auction is great fun and is our only primary fundraiser other than memberships. Please plan to bring seeds, plants, books, fresh persimmons, garden

paraphernalia, preserves, old spells used to kill wisteria, or whatever you think would sell. If you just can't find anything to donate, bring your pocketbook! It's a great cause and always great fun.

7) The Society is again printing color brochures to use in promoting new membership. There will be copies available at the Fall Meeting.

Finally, I want to thank the Society for giving me the opportunity to serve this year. It is always an honor to be associated with people who value botany, ecology, beauty, simplicity, complexity, folk history, and good company. I hope to see all of you at Dardanelle.

Jason Anders , ANPS President

A Personal Note From the President Elect

Hello! First of all, I want to thank everyone for a wonderful Spring Meeting in Mena! I really appreciate everyone who assisted, gave presentations, led hikes, and all those who attended probably one of the wettest meetings in ANPS history!!! Thanks so much for taking the rain in stride! (Speaking of rain...does anyone know where I can buy a drop??!! I don't know about all of you, but the drought and heat have not been kind to plants at my house this summer!!!)

I also want to thank everyone for their compassion and sympathy when I received news of my grandmother's passing that Saturday evening. I also received numerous cards and notes from ANPS members the next week. They were all very lovely gestures. Thank you.

In regards ,to the Fall Meeting, we're meeting a little later in the year than we typically have been in the recent past. I received quite a few requests for a slightly later meeting and was originally aiming for early to mid-October. However, circumstances and conflicts pushed the meeting to the third weekend in October. I hope this is acceptable to the membership and we shall see how things go. Your feedback, as always, will be much appreciated. At least maybe it will be cooler (hard to imagine at the moment with the forecast for the next few days showing 100 plus degrees!!)

I look forward to seeing you all in Russellville!

Sincerely,
Brent Baker
ANPS President Elect

Carl Amazon Conservation Award Given to Mary Alice Beer



Mary Alice points out an interesting plant behind her house at the Fall 2004 ANPS meeting. Photo by Clint Sowards.

The Awards and Scholarship Committee and the ANPS Board of Directors are pleased to announce that the 2006 Carl Amazon Conservation Award is being given to Mary Alice Beer of Fairfield Bay, Arkansas. Mary Alice was chosen because of her longtime commitment to the conservation of native plants and their habitat, for her contributions to our scientific knowledge of the Flora of Arkansas, and for her public-mindedness and dedication to sharing her knowledge and love of the native flora, all of which she has done on

her own and on a volunteer basis. Among her accomplishments and contributions are the preservation and maintenance of the Terrace Glade Preserve in Fairfield Bay (Van Buren County), her monitoring of rare species in her area, and her collections of thousands of plant specimens for the U of A Herbarium at Fayetteville.

When Mary Alice first walked into what would eventually become the Terrace Glade Preserve, a three acre sandstone glade adjacent to a condominium complex in Fairfield Bay, it was so beautiful she thought she was trespassing in someone's flower garden. At the time, the glade was owned by Fairfield Bay and was being used as a dump for construction debris and other trash. Mary Alice got some "no dumping" signs erected and petitioned the Fairfield Bay Community Club to formally protect the glade. She then built and has continued to maintain a system of trails through the preserve, doing much of the work herself but occasionally hiring help at her own expense. She regularly visits the glade with her loppers, controlling invasive brush and vines and keeping the habitat suitable for the sun-loving glade and woodland species. She led an excellent field trip to the glades for the ANPS at the Fall 2004 meeting. In addition to her work at the Terrace Glade Preserve, Mary Alice has created (and maintains) a lengthy trail along a creek on common land behind her home called the "Beer Run Trail". She also maintains the Indian Rock and Lost Horse Canyon Trails in Fairfield Bay and helps out with the River Trail at Shirley.

Mary Alice began her plant collecting efforts for Dr. Ed Smith (now retired) of the U of A Herbarium at Fayetteville in 1988. For five years, she collected thousands of specimens from Cleburne Independence, Searcy, Stone, and Van Buren Counties which she pressed, dried, and sent to Dr. Smith along with locality and collection data. These specimens filled many gaps in our knowledge of the flora of these counties and are a valuable part of the permanent collection of the U of A Herbarium. Van Buren County, for example, went from 65th to 17th out of the 75 Arkansas Counties in the number of documented species as a result of her collecting. She still collects and has also sent detailed data on populations of species of conservation concern in her neck of the woods to the Arkansas Natural Heritage Commission. She has faithfully monitored the rarest of these species on an annual basis, reporting her counts back to the ANHC.

Well known in Fairfield Bay for her nature column "Come Walk With Me" in the weekly paper, and for never heading down a trail without her ever-present loppers, Mary Alice is a missionary for conservation. She is listed at the Chamber of Commerce as a contact for anyone interested in nature at Fairfield Bay. She has offered to take anyone on a hike anytime, anywhere in her area and has made a number of great friends in the process. She led several field trips at our Fall 2004 meeting at Greers Ferry and opened her home to everyone during that meeting.

She doesn't shy away from confrontation when necessary either; as is evident from her recent tangles with City Hall over plans to "enhance and beautify" the view from the dining room of the Country Club (at the expense of trees along her beloved Indian Rock Trail). These trees are close to her heart because she personally identified and tagged some of them and created a trail guide to interpret them. She is also active in the Audubon Society and is an active birder.

Mary Alice is a retired professional cellist who moved to Arkansas in the mid 1980s after contracting environmental illness and multiple chemical sensitivity, a condition she developed after being poisoned from an accident that occurred during the installation of cellulose insulation in her home in Iowa. Her doctors agreed that her only hope at leading a semi-normal life would be to move to an area with a clean environment away from major industries, automobile exhaust, or agricultural areas with high concentrations of pesticides, herbicides, and fertilizers. Thus the relocation to Fairfield Bay. While her ability to travel and attend ANPS meetings is severely limited by her chemical sensitivity, she continues her work behind the scenes.

The Carl Amason Conservation Award carries with it a monetary award of \$1,000.00 to be used as the recipient sees fit. Mary Alice tells us that she will use the money to hire out some heavy work (large brush clearing and trail maintenance) at the Terrace Glade Preserve, among other things. If you are in the Fairfield Bay/Greers Ferry area, stop by and walk the Terrace Glade trails or give Mary Alice a call and let her know you appreciate her efforts. A brief award ceremony is scheduled for Saturday, September 30 at the Terrace Glade Preserve. Call Theo Witsell at 501.614.8465 for more information.

Scholarship Committee Announces Winners for 2006

The ANPS Scholarship Committee (Eric Sundell, George Johnson and Burnett Hinterthuer) reviewed eight applications for scholarships this spring. Seven scholarships were awarded to students who are involved in studying Arkansas flora. The eighth applicant, a very impressive candidate with a very worthy project, was not awarded a scholarship as her studies were involved with rainforest flora which is out of the country. Our mission is to provide monies for work either inside the state of Arkansas or in surrounding states with similar ecosystems.

Recipients of the Delzie Demaree Research Grant were Brent Baker, who is finishing his Master's work at UCA with Dr. Don Culwell, and Robert McElderry, who is beginning his master's work at the University of Arkansas with Dr. Johnnie Gentry. Each was awarded \$500. Also working at the U of A Herbarium with Dr. Johnnie Gentry, graduate students Carey Minteer and Marisa Williams were awarded \$250 each for their work on the invasive plants spotted knapweed (*Centaurea stoebe*) and beefsteak plant (*Perilla frutescens*), respectively. Jeremy Whisenhunt, who is beginning his Master's work at the University of Arkansas, was awarded a \$200 grant. He will be joining Carey in the spotted knapweed project.

Aileen Williams Scholarships in the amount of \$300 each were awarded to Rebecca Fry who is studying at UALR and Kerri McCabe who is a student at UCA.

We were very fortunate to have so many qualified applicants this year and hope that ANPS continues to be able to award scholarships for such important studies. If you wish to make donations to either of the scholarship funds, be sure to indicate this on your check or in a letter. Thank you for your support of Arkansas flora scholarship.—Burnetta Hinterthuer



Eastern columbine (Aquilegia canadensis) can be found in Arkansas on moist, rocky bluffs and outcrops in the Ozarks and Ouachitas. Photo by John Pelton.

PLANT OF THE ISSUE: OUACHITA BLAZING STAR



Ouachita blazing star (*Liatris compacta*). A species endemic to the Ouachitas and to Arkansas. Photo by John Pelton.

Of the ten species of *Liatris* known to occur in Arkansas, there is one that is all our own. Known formally as *Liatris compacta* (Torr. & A. Gray) Rydb., it has been called by a number of common names, most notably the Ouachita Mountain blazing star or the Arkansas gayfeather. In the past, this species was treated in the Arkansas literature as *Liatris squarrosa* (L.) Michx. var. *compacta* Torr. & A. Gray, but was recently elevated to full species status (as *L. compacta*) in volume 21 of the *Flora of North America* series. It is our earliest blooming species of *Liatris*, typically beginning its flowering in May.

You can find *L. compacta* in the Ouachita Mountains of western Arkansas and nowhere else on Earth. It grows in rocky, open woodlands on ridgetops and slopes, and on glades and bluffs of sandstone, novaculite, or shale. It can be identified in the field by the following characters: 1) multiple stems (sometimes 20 or more), each typically a foot to 18 inches long, arising from a large woody corm which can be nearly as large as a fist, 2) purple flowers that occur in large heads, typically one (but sometimes several) at the end of each stem, and 3) leaves and stem that are smooth and hairless.

The recognition of *L. compacta* as its own species seems clearly appropriate. The other Arkansas species that was recognized as a variety of *L. squarrosa*, *L. hirsuta* Rydb. [formerly *L. squarrosa* (L.) Michx. var. *hirsuta* Rydb. ex Gaiser], blooms later in the summer and has a number of obvious differences that can readily be seen with the

naked eye. But once you know you have a multi-stemmed plant with a single (or perhaps a few) flower heads near the tip, the following key should be all you need to tell if you have *L. compacta* or *L. hirsuta*:

- 1a. plant hairy, at least in the inflorescence or on the margins of the leaves.....*L. hirsuta*
- 1b. plant essentially hairless (except the lobes of the petals).....*L. compacta*

Another bonus of recognizing *L. compacta* at the species level is that now we don't have to worry about having two very different Arkansas species with nearly identical names: *Liatris squarrosa* and *Liatris squarrulosa*. That was confusing. True *L. squarrosa*, as it turns out, is not known from Arkansas.

Liatris compacta does well in the garden and is easy to grow from seed, which should be collected in the early fall. Seed will need to be sown in the fall or cold moist stratified for 60 days or so to break dormancy. Plants typically begin flowering the second year after being grown from seed. Clumps will grow in size each year and will live a long time. It does best in full to partial sun in poor, well-drained soil. It is very drought tolerant once established and provides a spectacular early color display. — Theo Witsell



This rocky, ridgetop glade and woodland on North Fork Pinnacle above the Winona Scenic Drive in the Ouachita National Forest is the typical habitat for Ouachita blazing star. Photo by John Pelton.

ARKANSAS NATIVE PLANT SOCIETY

FALL 2006 MEETING

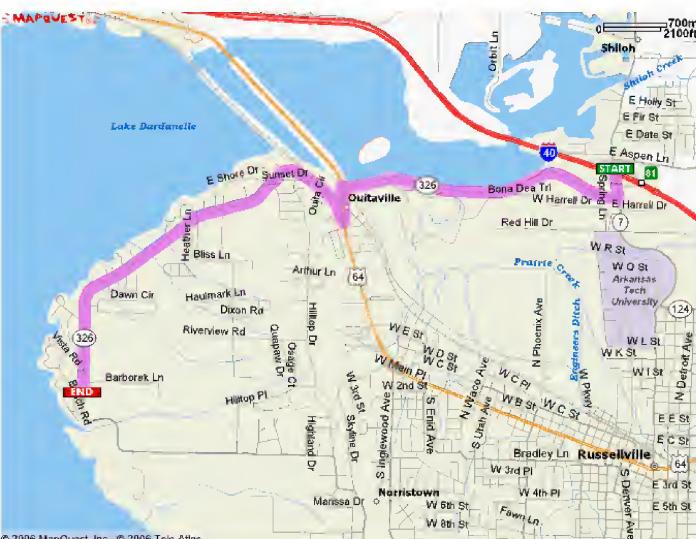
OCTOBER 20-22, 2006

Lake Dardanelle State Park Visitor Center
100 State Park Drive
Russellville, AR
479.967.5516

The Friday and Saturday Meetings will be held at the Lake Dardanelle State Park Visitor Center.

The following directions are from I-40. For those of you using Hwy 7 (from the north or south), you can use the I-40 crossing as a reference point and follow the directions below [or take Main Street (Hwy 64) from Hwy 7 (Arkansas Ave.) to intersection with Marina Road]:

Use I-40 Exit 81 [labeled START on the map below]. *From the west* (Ft. Smith), turn right (south) on Hwy 7 at the stoplight. For reference, Holiday Inn is immediately to your right. *From the east* (Little Rock), turn left off of the exit ramp onto the access road (Aspen Ln.). Follow to the stoplight at intersection with Hwy 7. Turn left (south) on Hwy 7 and cross I-40 to the stoplight. *Everyone* continue south on Hwy 7 (also called N Arkansas Ave.) less than 0.1 mile to next stoplight at intersection with Lake Front Drive (also called Hwy 326). Turn right on Lake Front Drive and drive 1.9 miles to stoplight at intersection with Parkway, Main Street, and Hwy 64. Go straight through stoplight onto Main Street and drive 0.2 miles to stoplight at intersection with Marina Road (also called Hwy 326). Turn right on Marina Road and drive 2.8 miles to the large Lake Dardanelle State



Park sign on the right [labeled END on the map below]. The Visitor Center is at the base of the hill on the shore of Lake Dardanelle.

Registration will be from 4:30 pm – 7 pm Friday. The Executive Board Meeting will convene at 5:30 pm.

The Annual Plant Auction will begin at 7:30 pm. A word about the auction for those new to ANPS and a reminder for others: The Annual Plant Auction is one of our major fundraisers, is held at the fall general meeting, and is supported by donations from members and guests. Such donations include plants, seeds, books, garden tools, botanical prints, carved wood items, homemade preserves/jellies, crafts, and a multitude of other items. This is always a fun and informative event! We had a very successful auction last year, so I challenge everyone to bring items, as well as checkbooks, and let's make this one even better!

Saturday hikes will be announced Friday night. The Saturday evening meeting will convene at 7 pm with a program followed by the Business Meeting.

Lodging information is provided below.

If you have questions or need assistance, contact:

Brent Baker
btb2001@hotmail.com
479-970-9143

Lodging:

A full listing of Russellville Hotels/Motels can be found at <http://www.discoverrussellville.org/lodging.php>. A few of them are listed below:

Holiday Inn
Hwy 7 N and I-40 (2407 N Arkansas Ave.)
Russellville, AR 72802
479-968-4300; Toll free at: 1-800-465-4329

This hotel is on Hwy 7 right next to I-40 at Exit 81. We have 20 rooms reserved here at a discount rate of \$64.95 plus tax per night. This rate is for a single or double. You must mention ANPS to get this rate & **must reserve by October 6**. Pets are allowed with a \$10 fee. Cagle's Mill restaurant is adjacent to the hotel.

Fairfield Inn & Suites
120 East Harrell Drive
(just off Hwy 7 near I-40)
Russellville, AR 72802
479-967-9030

Hampton Inn
2304 N Arkansas Ave.
(on Hwy 7 near I-40)
Russellville, AR 72802
479-858-7199

Super 8 Motel
2404 N Arkansas Ave.
(on Hwy 7 near I-40)
Russellville, AR 72802
479-968-8898; Toll free at 1-800-800-8000

Motel 6
215 West Birch Street
(near Hwy 7 and I-40)
Russellville, AR 72802
479-968-3666

For those of you who like to camp, a few possibilities are listed below:

Lake Dardanelle State Park (Russellville Area)
100 State Park Drive off of Marina Road
(same location as Visitor Center)
Russellville, AR 72802
479-967-5516

Campsites ranging from \$15.50 to \$22.50 per night.

Lake Dardanelle State Park (Dardanelle Area)
Hwy 22 northwest of Dardanelle
Contact info. same as for Russellville

Mt. Nebo State Park
16728 West State Hwy 155
Dardanelle, AR 72834
479-229-3655

Campsites \$13.00 per night. Cabins also available (1-800-264-2458).

Old Post Road Park (Army Corp of Engineers)
1063 Lock and Dam Road
(on Arkansas River near Dardanelle Lock and Dam)
Russellville, AR 72802
479-968-7962

Campsites \$18.00 per night.

In Memory

Since the last issue of the Claytonia, we have received word that two long-time members of the Society have died.

Clementine (Clemmie) Winfrey Moore of Rudy died on March 2, 2006, at age 88. She was a pioneer of Arkansas botany, doing extensive work throughout the state locating and identifying all manner of plants and trees. She was a past president of the ANPS. She and her late husband, Dr. Dwight M. Moore, were pioneer members of the Arkansas Native Plant Society and developed the South Arkansas Arboretum in El Dorado, in addition to making many other important contributions to Arkansas botany.

Robert E. L. Bearden of Little Rock, long-time ANPS member and nature lover, died in August. His wife Ellen, also an ANPS member, died last year.



Featherfoil (Hottonia inflata) above and pinesap (Monotropa hypopithys) below. Photos by Craig Fraiser.



ARKANSAS NATIVE PLANT SOCIETY

SPRING 2006 GENERAL MEETING MINUTES

Rich Mountain Community College, Mena Arkansas.
April 29, 2006.

Jason opened the meeting and asked for a motion to accept the minutes of the fall meeting as published in *Claytonia*. No changes or comments were offered, the motion was made and carried unanimously.

Jason asked for the financial report. Barbara explained the format she used to keep financial records. Jason asked for a motion to accept the report. No changes or comments were offered, the motion was made and carried unanimously.

It was announced that the fall meeting will be in Russellville, 20, 21, & 22 of October. Details will be published in the next issue of *Claytonia*.

Jason announced that Linda Chambers has accepted the vice president office.

Jason reported progress on the Carl Hunter memorial project's goal of placing one Wildflower and one Tree book in each public library. He has been somewhat successful in obtaining corporate sponsorship for the project. Donations can be earmarked for the project and sent directly to the Treasurer.

The Scholarship & Awards committee announced their selections. From the Delzie Demaree Research Fund: Robert McElderry, UofA, \$500; Brent Baker, UCA, \$500; Marisa Williams, UofA, \$250; Carey Minteer, UofA, \$250; and Jeremy Whisenhunt, UofA, \$200. From the Aileen McWilliam scholarship Fund: Rebecca Fry, UALR, \$300; and Kerri McCabe, UCA, \$300.

Jason discussed the Board decision to use the Amason award to honor Mary Alice Beer.

Eric announced that the Arkansas Flora project will publish a checklist in May. The checklist will eventually contain an atlas.

Eric announced his retirement from the Scholarship & Awards committee, and that Jason will be chairing that committee until a scheduled election is held.

Theo reported progress on the ANPS brochure project.

He asked the membership to approved awarding a lifetime membership to Michael Warriner for his work on the brochure and lifetime memberships to Suzanne & Ted Barnes for their continued work on the T-shirts.

Members were asked by a representative of the Ouachita Watch League to educate ourselves on the role of fire in forest management, and consider if the current forest management plan is making the best use of fire in the Ouachita Forest.

Dan Marsh offered to lead hikes that start later in the day and move at a slower pace for those members who might enjoy that.

It was announced that Mike Amason would welcome visitors.

Mike Vernon mentioned the native species at the Dardanelle State Park Visitor Center, and asked that members recognize Brent for the work he has done on the project. Brent reported the critical assistance offered by state personnel and the Pope County Master Gardeners. Mike mentioned a similar project at Mt Nebo.

Jason asked the members to approve changes to the bylaws that:

1. Delete all reference to the defunct Arkansas Conservation Coalition
2. Change Article 5 Section1 to eliminate the offices of Historian and Communications/Publicity chairperson
3. Change Article 5 Section 4 to include the Communication/Publicity chairperson's role in the office of Vice President.
4. Change Article 5 Section 5 to include the role of archiving in the Secretary's function

All changes were agreed to with no dispute.

Respectfully Submitted,
Jude Jardine (ANPS Secretary)

Dr. Eric Sundell Retires

Longtime University of Arkansas at Monticello professor and ANPS Membership Chair, Dr. Eric Sundell, retired from the University this summer. With this turn of events, Eric has also passed the torch of ANPS Membership Chair to Maury Baker of Hot Springs Village. Please note the new address for membership renewals.



Eric auctions off a sweetbay magnolia at the Fall 2004 ANPS meeting. Photo by Clint Sowards.

He did extensive inventory work with his classes at Warren Prairie Natural Area, an area of saline soil barrens in Drew and Bradley Counties known for its unique flora and many rare species. He also recently helped the Arkansas Natural Heritage Commission with inventory efforts in the Pine Flatwoods Ecosystem of southern Arkansas, helping to identify significant areas and set priorities for conservation.

Eric is an expert on the milkweeds, and anyone who has seen his program on milkweed pollination and ecology knows that he is a gifted teacher and engages students and audiences alike. Many of his students have gone on to become conservation and natural resources professionals, armed with an understanding and appreciation of our rich flora. Eric has also led a number of workshops for the public on plant identification, written many articles for the *Claytonia*, served in ANPS officer positions, and led countless field trips.

He has been a very active member of the Arkansas Vascular Flora Committee since its inception in 2000. His work toward the goals of this committee has included identifying thousands of specimens of all sorts of plants from all over the state, helping to make the new checklist accurate and up to date. We thank Eric for his many years of dedicated service to the ANPS and to our knowledge of the Arkansas flora.

Eric and his wife Milanne plan to stay in Arkansas, so we trust that his retirement means that he will have more time to lead field trips for the ANPS!

New Members

The following new members have joined the ANPS since the last issue of *Claytonia*:

Jennifer Akin (Lonoke, AR)
William Dark (Rogers, AR)
Kerri McCabe (Conway, AR)
Jean Ann Moles (Benton, AR)
Anne Prichard (Fayetteville, AR)
Elizabeth Sartain (Little Rock, AR)
Rosanna Taylor (Clarksville, AR)
Susan Whatley (El Dorado, AR)
Gladys S. Whitney (Little Rock, AR)
Brent & Katie Williamson (El Dorado, AR)

We welcome these new members to the Society!



Prairie rose (Rosa setigera) is one of several species of rose native to Arkansas. It can be found in prairies, glades, open woodlands, and on bluffs in upland areas of the state. Its flowers are typically bright pink. Photo by John Pelton.

Upcoming Events

October 6-8 Audubon Arkansas Natural History Workshops (see announcements).

October 7 Natural State Expo. Little Rock Statehouse Convention Center (see announcements).

October 20-22 Arkansas Native Plant Society Fall Meeting in Russellville, Arkansas. See detailed info elsewhere in this issue.

November 11 Ozark Chapter ANPS (OCANPS) annual meeting/trip. Meet at Buffalo Lodge, ca. 4 miles west of Jasper and south of Hwy. 74, right before the Kyles Landing/Camp Orr road to the north, at noon. Bring a sack lunch and we will eat lunch, then hike the Buffalo River Trail from Ponca to Steel Creek (we will arrange for a shuttle) if the weather permits! Returning to the cabin, we will hold our business meeting, eat a potluck dinner, and have the plant auction. Following, those who wish can go into Jasper to watch the musical entertainment at Ozark Cafe where donations are taken for local charities. Those who wish can plan a hike for Sunday morning after breakfast. Please call Burnetta at 479-582-0317 for a total count. The lodge plus bunkhouse can hold up to 24 people. Since OCANPS pays for the deposit, we anticipate each individual will pay ca. \$20 for the night's stay.

Announcements

New Forest Service Wildflower Website—The Forest Service has produced a “Celebrating Wildflowers” website which gives information on wildflowers and activities relating to wildflowers all over the country. The website can be accessed at www.fs.fed.us/wildflowers/. A link to this site will be posted on the ANPS website at www.anps.org.

Invasive Species Field Guide Needs Help from ANPS Members—Jude Jardine is still working on updates to the Invasive Species Field Guide. She needs good photos of a number of common exotic invasive plant species. For a list of images needed, please contact Jude at jkjardine@netscape.com or call 501.676.5535.

Audubon Arkansas Natural History Workshops—The Arkansas Audubon Society is also sponsoring adult natural history workshops in the fall at Ferncliff Presbyterian Camp just west of Little Rock. There will be two to three workshops, each running Friday noon to Sunday noon, Oct. 6-8, 2006. Dr. Eric Sundell will be teaching a tree identification workshop for beginners and intermediates. Dr. Jim Edson will be offering a

geology, rocks & minerals, and land forms workshop with evening activities on monarch butterflies (Jim is also the monarch coordinator for Arkansas and does a lot of butterfly banding, larvae raising, milkweed growing, and monarch watching work with school kids). There may be a third workshop on insects. Folks interested in attending should contact Barry Haas at bhaas@sbcglobal.net. Each workshop will have room for 12 participants and will include board and for folks from the hinterlands: motel-type rooms at Ferncliff. The food and accommodations are excellent.

Natural State Expo—The ANPS will have a booth at the first-ever Natural State Expo, to be held October 7th from 9 am to 4 pm at Governor's Hall #1 in the Statehouse Convention Center in Little Rock. You can check out their website at www.naturalstateexpo.org. The focus of the event will be on sustainability and sustainable development, which they define as *“development that meets the needs of the present without compromising the ability of future generations to meet their own needs”*. This fits right in with our mission promoting the conservation of native plants. The ANPS will be one of more than 50 exhibitors at the expo, where attendees can shop for eco-friendly products and participate in discussions on sustainability topics such as food, water, shelter and energy. The expo will also include children's activities and educational opportunities. The entrance fee is \$1.00. Drop by the ANPS booth and say hello or call Theo Witsell at 501-614-8465 if you'd like to volunteer to staff the table for a while. For more info on the event itself, contact Katy Elliott at 501.837.7959 or email naturalstateexpo@yahoo.com.



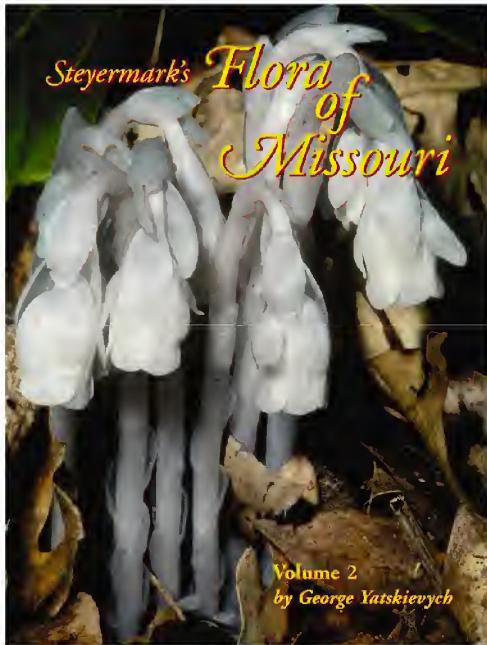
Lizard's tail (Saururus cernuus) is a common plant of wetlands throughout much of Arkansas. Photo by John Pelton.

BOOK REVIEWS

Steyermark's Flora of Missouri Volume II

By George Yatskievych

1181 pages. Hardback. \$48.00 plus \$8.88 s&h. Missouri Botanical Garden Press.



Julian Steyermark's *Flora of Missouri* has long been held up as the shining example of what a state floristic manual should be. Since I began my study of plants in the mid 1990s, Steyermark's book, already long out-of-print, was the standard against which all others were measured.

Aside from obvious availability problems (on the rare occasion that a copy

became available it was likely to fetch as much as \$300 on eBay), the original, first published in 1963, had become badly out-of-date. In the 43 years since, a lot has changed taxonomically and much important floristic work has been done in Missouri, documenting many species new to the state and expanding the known range and knowledge of many more. Steyermark's *Flora* clearly needed revision. To address this need, the Flora of Missouri Project was formed to expand and update Steyermark's *Flora*.

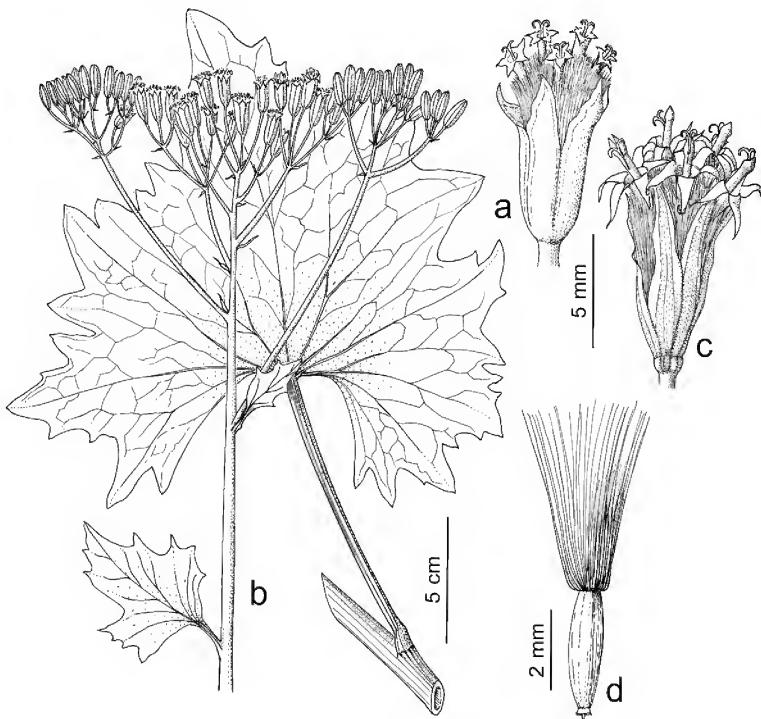
Updating Steyermark's single volume opus has turned into a three-volume project that is now in its 18th year. But good things come to those who wait. The quality of the product is a testament to the talent, time and resources that have gone into it. Volume I, published in 1999, treated the monocots, pteridophytes, and gymnosperms, leaving the dicots to be split among volumes II and III. Volume II treats the dicot families in alphabetical order, from the Acanthaceae (petunias and relatives) through the Mimosoideae and Caesalpinoideae subfamilies of the Fabaceae (legume family). Subfamily Faboideae will follow in Volume III.

The species accounts are among the most detailed of any floristic manual in North America, providing a detailed description of every part of each plant (a feature lacking in

Steyermark's original) as well as information on each species' blooming period, range (county maps showing the range within Missouri with written descriptions of the global range), habitat needs, varieties or forms described, synonymy, and more.

The revised edition features entirely new artwork and includes considerably more species illustrations than the original. 193 full page plates are included in volume II, each with 5 or 6 species illustrated by crisp, clear, well-reproduced technical line drawings (example below). Everything is easy to see and important features for identification are shown. Many of these illustrations are of significantly better quality than those in the original. For the most part, the illustrations, all of which are superb, are large enough to do the artwork justice and provide the reader with a good look at the important characteristics of each species. Incidentally, ANPS member Linda Ellis illustrated the entire Asteraceae (sunflower family) in beautiful and accurate detail. Unfortunately not every species in the manual is illustrated, though nearly all are.

The keys function very well. In addition to some casual use over the past month in the field, I recently sat down with some known specimens of asters and goldenrods (two difficult groups) from the Ozarks and Mississippi Alluvial Plain and ran them through the keys. I found the keys to be accurate and efficient and did not encounter any roadblocks or frustrating ambiguities (aside from those inherent in identifying asters and goldenrods). The Asteraceae (the largest family in the flora) is divided into and is arranged by Tribes, making it a little easier to digest and handle.



Sample illustration from *Steyermark's Flora of Missouri Volume II*. *Arnoglossum atriplicifolium* (pale Indian plantain). Art by Linda Ellis.

BOOK REVIEWS

The exclusion of the Subfamily Faboideae of the legumes from Volume II is perhaps the most frustrating thing about the book, leaving the user with access to a few, but out of luck for most species of the bean and pea family, eagerly awaiting the publication of the third and last volume in the series. Users will also occasionally be let down by a species that is not illustrated (though not very often). Last on the list of complaints is that there is no key to families in Volume II (it will appear for the entire group of dicots in Volume III). Considering the amount of time that passed between Volumes I and II, it would have been better to have the key to families in volume II with "(volume III)" listed after the names of those families that don't appear in Volume II. Minor errors, inherent in a project as complex and exhaustive as this, will inevitably come to light (such as the accidental switching of Virginia sneezeweed [*Helenium virginicum*] and autumn sneezeweed [*H. autumnale*] in the key to *Helenium* on page 490).

To the Arkansas user, the book will be most useful for the Ozarks, Crowley's Ridge, and the northern part of the Mississippi Alluvial Plain (Delta), where almost all species encountered also occur in Missouri. As the user travels south, they will find that the majority of the flora of the Arkansas Valley and Ouachita Mountains is still captured, with noticeable gaps starting to appear in the Gulf Coastal Plain.

This work is of the highest quality and George Yatskievych has done himself and the late Julian Steyermark proud with this excellent reference to the flora of Missouri and the region. The price is almost unbelievable. An enormous value for a book of this caliber and size. Volume I (introduction, ferns & fern allies, gymnosperms, and monocots) is still available as well. Copies are available from the MBG Press Orders / Missouri Botanical Garden / P.O. Box 299 / St. Louis, MO 63166-0299, or call 314.577.9534 or visit www.mbgpress.org.

—Review by Theo Witsell.

The Illustrated Flora of East Texas Volume I

By George M. Diggs, Barney L. Lipscomb, Monique D. Reed, and Robert J. O'Kennon

1594 pages. Hardback. \$89.95 plus \$7.50 s&h. Botanical Research Institute of Texas Press.

Those of us interested in the flora of southwestern and southern Arkansas and the surrounding country have eagerly awaited the publication of a book like this for a long time. At last, it is here, a comprehensive reference for that rich and diverse "hole in the map" not previously covered by modern floristic manuals! This ecologically important region of Texas includes 3,660 kinds of vascular plants, which is more than 2/3 of the plants known from that entire state, in just 23% of the land area. It will take three large volumes to fully describe and

illustrate this rich flora and this monumental work is the first of those, covering the ferns and fern allies, gymnosperms, and monocots. A total of 1,060 plants are treated in great detail.

This book has the most in-depth and impressive introductory material I have ever seen in a flora, covering 300 pages. There are detailed sections loaded with color maps, photographs, and other illustrations. Topics covered include vegetation, ecology, geology, soils, climate, pre-settlement and early settlement conditions, floristic origins, conservation, and botanical history. Each of the major, floristically important ecoregions (blackland prairie, pineywoods, post oak savannah, and red river area) and two unique botanical areas (Caddo Lake and The Big Thicket) are given their own chapters and explored in great detail. There is even a nicely illustrated chapter on botanical art in East Texas.



A number of features were incorporated into this book to make it useful to non-specialists. Accurate line drawings are included for all species. Color photos are included for nearly 200 taxa (including a number of grasses and sedges, which are rarely represented in field guides). Taxonomic treatments of each species include information on whether a plant is native or introduced, invasive in natural settings, endemic, or commercially important. Also given are derivations of generic names and specific epithets (a really interesting and useful feature), characters helpful in family recognition in the field, notes on useful and toxic plants, and references to supporting literature.

There are detailed appendices on a number of topics including phylogeny (evolutionary relationships) at the family level, cladistics (a current controversy/approach in taxonomy), changes in scientific names, illustration sources, collecting herbarium specimens, endemic species, species of conservation concern, conservation organizations, books on native plants, suggested native ornamentals, sources to obtain

native plants, native plants important to wildlife, butterfly & moth host plant information, commercially important timber trees (with 2-page species accounts with range maps, color photos of wood, bark, & live plants), and botanically related internet resources. There is a lengthy, illustrated glossary, and a very impressive literature cited section with more than 4,000 references.

Throughout this work, it is clear that the authors have taken pains to make it usable by non-experts. While it is technically accurate and scientifically robust, it is not overly packed with baffling jargon and explains concepts well in common English. Another feature that I found useful is that the range maps provided for each species cover the distribution in the entire state of Texas, not just East Texas. This allows the user to see important distribution patterns within the state and infer them over a broader geographic area.

To test the keys, I sat down with a stack of specimens of known sedges and grasses from southwest Arkansas and keyed them out. I found the keys to be accurate and efficient to use. Fans of the taxonomic arrangement of the caric sedges (*Carex* spp.) according to Sections may be disappointed, as these are not presented in the keys nor in the arrangement of the species descriptions, though the Section of each species is given in the respective species accounts. Similarly, the grasses are not divided among the Tribes, but arranged alphabetically by scientific name. Tribes, however, are given in each genus description.

Aside from top-notch attention to accurate information and technical detail, this manual is absolutely beautiful. The introductory material is packed with photos, maps, and

paintings, many of them in full color. Layout is visually appealing and the book is easy to use. The amount of information presented is almost overwhelming, but it is packaged into discrete sections, providing an encyclopedic volume of pretty much everything one would ever want to know about the flora of the region. This book is large and heavy, not the sort of thing to carry into the field in your backpack (unless you are training for some athletic event).

The most frustrating thing I found with the book is the small size of the illustrations (typically about 2 by 3 inches). Details are sometimes obscured by the reduction to that small size. I also wonder if this volume shouldn't have been divided into two smaller volumes. The large size and weight make it a little difficult to maneuver the book. It's not a problem when sitting and reading it by itself, but something quickly noticed when keying out a stack of plant specimens using several manuals and switching between them on your work space. It is also a bit large for comfortable bedside reading. Confining it to one volume, however, no doubt keeps the cost down.

These minor complaints aside, this is an absolutely incredible reference. It has clearly raised the bar in terms of quality, comprehensiveness, and appearance in a floristic manual and is a bargain for the price, especially considering the cost of academic textbooks with a fraction of the information presented here. Copies are available from the Botanical Research Institute of Texas / 509 Pecan St. / Fort Worth, TX, 76102-4060, or call 817-332-4441. An order form can be accessed at http://www.brit.org/sida/PDF/ETF_PDFOrderForm.pdf. The Illustrated Flora of North Central Texas (a single volume) is still available as well.—*Review by Theo Witsell*

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The purpose of the Arkansas Native Plant Society is to promote the preservation, conservation, and study of the wild plants and vegetation of Arkansas, the education of the public to the value of the native flora and its habitat, and the publication of related information.

CLAYTONIA

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